



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,235	10/31/2001	Ronald S. Fearing	07043-100001 / B01-005	7890

26181 7590 02/07/2003

FISH & RICHARDSON P.C.  
500 ARGUELLO STREET, SUITE 500  
REDWOOD CITY, CA 94063

EXAMINER

BUDD, MARK OSBORNE

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/004 235

Applicant(s)

Shimada et al

Examiner

M. Budd

Group Art Unit

2834

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☐ Responsive to communication(s) filed on \_\_\_\_\_
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-24 is/are pending in the application.
- ☐ Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-24 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
  - ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 10-21-02
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 2834

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The written description, claims and drawings are in conflict as to what they convey. For example, arm #14 (fig. 1) is shown to bend in the 'X' direction. The actual movement at the free end is an arc in the x-y plane, but the motion is primarily in the 'X' direction. The beam movement is parallel to the fixing support #18. However, figs. 2 and 7 show beam #14 extending from support #18 and moving linearly perpendicular to the support; which is in direct conflict with figure 1 and some of the written description and claims. Due to the conflicting, contradictory disclosure, one of ordinary skill in the art would not know how to make or use the device.

Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims and portions of the written description allege that the object manipulated is held or gripped by the two arms. The arms can only provide a grip if applied to opposite, parallel surfaces of an element, and can only produce a very minor amount of gripping

Art Unit: 2834

force, not enough to lift an object. Thus the disclosure does not provide an adequate description of a device capable of gripping without very stringent restrictions..

Regarding method claims 17-24, there is no disclosure of a single beam being capable of gripping or grasping one side of an object since there is no actual connection between the beam and the object-they only make contact; they are not attached according to the written description.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 11, 13-15 and 17-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Smits (Fig. 4) Ivanov, McNanely (figs. 1-3 and 10), Assard (figs. 1-3) or Zumeris (figs. 1 and 11).

Claim 10 is rejected under 35 U.S.C. 102(a) as being anticipated by Zumeris (Figs. 1 and 11), Smits, (fig. 4) or McNaney (Figs. 1-3 and 10).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2834

Claims 4-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smits or McNaney in view of Tygart.

Smits and McNaney teach using piezoelectric bender beams to manipulate an object. The piezo elements constitute the beams. Tygart teaches using a piezo element beam as the actuator per se (figs. 2, 3 5 and 6) or alternately using the piezo bender to drive a parallel connected separate beam (fig. 4). Since Tygart teaches these two constructions to be equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art that the bender actuators of Smits or McNaney could use either piezo beams or a piezo bender driving a beam.

Claims 7 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smits or McNaney in view of Tygart as applied to claim 4 above, and further in view of Hatamura.

This claim adds the use of strain gauges. Hatamura teaches using strain gauges to monitor movements produced by piezoelectric actuators to use in a feedback servo system. Thus for at least this reason it would have been obvious to use strain gauges in either Smits, McNaney or Tygart.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smits, McNaney or Zumeris in view of Hatamura, Chang or Rogallo.

Each of Smits, McNaney and Zumeris teach the manipulator device using plural, perpendicular bending arms. They do not include an x-y-z stage. However, Rogallo, chang and Hatamura teach such systems are well known to provide three degrees of freedom for

Application/Control Number: 10/004,235

Page 5

Art Unit: 2834

manipulating an element. Thus, to provide more freedom of movement it would have been obvious to one of ordinary skill in the art to place the manipulators of Smits, McNaney or Zumeris on an x-y-z stage.

Claims 23 and 24 are would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Further, cited of interest are Staufenberg, and Lewis.

Budd/ds

02/05/03

MARK J. BUDD  
PRIMARY EXAMINER  
ART UNIT 712